THE PHARMACOLOGY OF

Chinese Herbs

KEE CHANG HUANG
Emeritus Professor
Pharmacology and Toxicology
University of Louisville
Louisville, Kentucky

CRC Press
Boca Raton Ann Arbor London Tokyo

GINSENG-LIKE HERBS

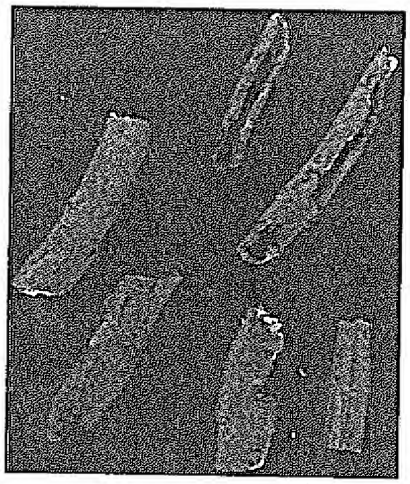


FIGURE 6. *Ci Wu Jia* or *North Wu Pie Pi.*

CI WU JIA (刺五加) — the dried root and rhizome of *Acanthopanax senticosus* (Rupr. et Maxim.) Harms; also known as *Eleutherococcus senticosus*

This herb was commonly sold on the market as Siberian ginseng (Figure 6). The Chinese also called it North *Wu Jia Pia* (北五加皮). It has been frequently confused with two similarly named herbs: (1) *Wu Jia Pi* (五加皮, or South *Wu Jia Pi*), the root of *Acanthopanax gracilistylus* (W. W. Smith) (see Chapter 11); and (2) *Xiang Jia Pi* (香加皮, the fragrant *Jia Pi*), the bark of *Periploca* (see Chapter 2 and Figure 6).

In his article, Hu[1] described the differences between these herbs, giving a detailed picture of each plant. Through a miscroscope, it can be seen that the parenchyma cells of these plants are different. For example, the parenchyma cells of the periploca have prismatic crystals; the herb has a distinct bitter taste. *Eleutherococcus*, on the other hand, has druse-type crystals in the parenchyma cells and the bark has no taste.

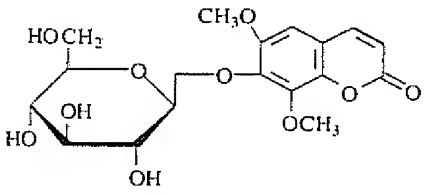
Chemistry

Several substances have been isolated from the *Ci Wu Jia*

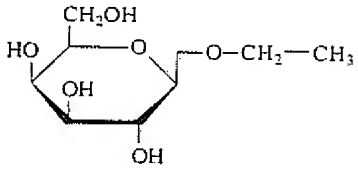
1. The glucosides
   β-Sitosterol glucoside, $C_{35}H_{60}O_6$
   Eleutheroside B_1, $C_{17}H_{20}O_{10}$
   Eleutheroside C, $C_8H_{16}O_6$
   Eleutheroside D, E, F, and G
2. The nonglucosides
   l-Sesamen, $C_{20}H_{18}O_6$
   Syringaresinol, $C_{22}H_{26}O_6$

Other glucosides have been isolated from the leaf. They are eleutherosides I, K, L, and M; their structures differ significantly from those isolated from the bark.

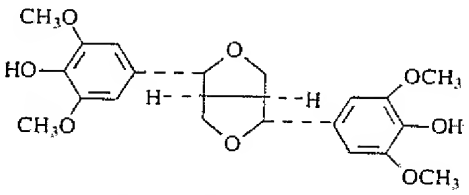
Polysaccharides — according to Wagner there are four polysaccharides isolated from *Acanthopanax* with a molecular weight ranging from 15,000 to 200,000. They are immunostimulating agents.



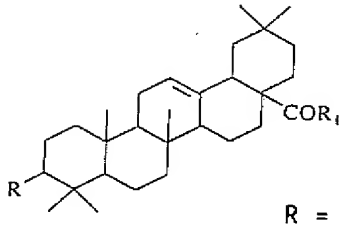
Eleutheroside B_1



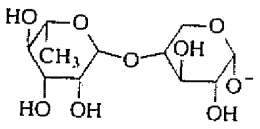
Eleutheroside C



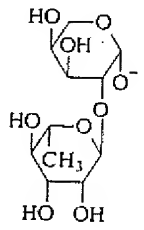
Syringaresinol



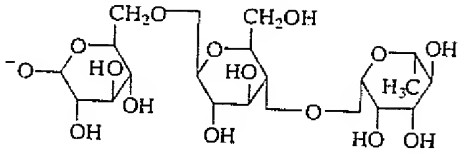
	R =	R_1 =
Eleutheroside I	a	OH
Eleutheroside K	b	OH
Eleutheroside L	a	c
Eleutheroside M	b	c



a



b



c

A related species from the genus *Acanthopanax* is Short Stem *Wu Jia* (短干五加), or the root of *A. sessiliflorus* Seem. It contains the following substances

- Acanthoside A, B, C, and D
- 1-Sesamen
- 1-Savinin, $C_{20}H_{16}O_6$

Both *Ci Wu Jia* and Short Stem *Wu Jia* are used as ginseng substitutes, thanks to their wide availability within China and the low cost.

Actions

1. The *Ci Wu Jia* glucosides have ginseng-like effects, including stimulation of the ACTH-cortisol system and lowering of blood pressure and blood sugar levels.
2. On the CNS, the herb exerts a tranquilizing effect.

Therapeutic Uses

Chinese traditional medicine recommends this herb for the replenishment of body functions and to promote digestion.

It is also said to enhance male sexual functions and to relieve mental strain.

References

1. **Hu, S. Y.,** in *Advances in Chinese Medicinal Materials Research*, Chang, H. M., et al., Eds., World Scientific Publishing Co., Singapore, 1985, 17–33.
2. **Wagner, H.,** ibid., 159–170.

ZHU JE GINSENG (竹節人參) — the root of *Panax japonicum* C. A. Meyer

Zhu Je Ginseng contains the following active ingredients

- Chikusetsa saponin II, $C_{47}H_{80}O_{17}\cdot 2H_2O$
- Chikusetsa saponin IV, $C_{47}H_{74}O_{18}\cdot 4H_2O$
- Ginsenoside Ro

This herb has been widely studied by Japanese investigators. It is commonly used commercially to substitute for the Manchurian or Korean ginseng.